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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/585,288	WU ET AL.
	Examiner	Art Unit	
	CHHEAN THAO	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2009*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 12-17* is/are pending in the application.
  4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-10 and 12-17* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☐ All   b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

1.   Claims 1-10 and 12-17 are pending in the application. Claim 11 has been cancelled.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

        Regarding claim 1, applicant claimed "a method for reducing load of Home Subscriber Server (HSS)'s interface, comprising: upon receiving a request message from Serving Call Session Control Function (S-CSCF) comprising a request for a storing name of the S-CSCF and for downloading a user's subscription information, a HSS first storing the name of S-CSCF in the request message, then returning to the S-CSCF a response message comprising the user's subscription information". It is not clear how the body of the claimed invention reduce load when S-CSCF requesting info from HSS.

3.   **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as

set forth in section 102 of this title, if the differences between the subject matter sought to be

patented and the prior art are such that the subject matter as a whole would have been obvious at

the time the invention was made to a person having ordinary skill in the art to which said subject

matter pertains. Patentability shall not be negatived by the manner in which the invention was

made.

4.   Claims 1, 10 are rejected under 35 U.SC. 103(a) as being unpatentable over Ejzak (US

20030027569 A1) in view of Partanen (US 20040085949 A1).

        Regarding claim 1, Ejzak discloses a method for reducing load of Home Subscriber

Server (HSS)'s interface, comprising: upon receiving a request message from Serving Call

Session Control Function (S-CSCF) comprising a request for a storing name of the S-CSCF and

for downloading a user's subscription information, a HSS first storing the name of S-CSCF in the

request message, then returning to the S-CSCF a response message comprising the user's

subscription information (In concert with HSS 142, S-CSCFs 303 and 304 act like Registrars. In

other words, **S-CSCFs 303 and 304 accept Register requests and make their information**

available through HSSs 142. HSSs 142 are preferably **updated with the S-CSCF addresses**

(i.e., store S-CSCF name) and **send the subscriber data to the corresponding S-CSCFs (i.e.,**

returns subscriber info to S-CSCF) for storage; Ejzak, para 85; S**-CSCF downloads (610) the**

subscriber profile information from the HSS; Ejzak, para 110).

        Although Ejzak discloses all of the limitations, Ejzak fails to specifically teach HSS

storing name of the S-CSCF.

However, the preceding limitation is known in the art. The second reference, Partanen

teaches storing the name of S-CSCF (**the S-CSCF sends to the HSS a registration flag (via a**

Cx-Put), which the HSS stores together with the S-CSCF name; Partanen, para 55).

Therefore, it would have been obvious to one of ordinary skill in the art to implement the

technique of Partanen within the system of Ejzak to emulate the HSS storing the S-CSCF's name

and user information in order to reduce traffics on the Cx protocol interface by allowing the I-

CSCF to receive the name of S-CSCF from the HSS without the HSS re-requesting the S-CSCF

name from the S-CSCF.

Regarding claim 10, the combination of Ejzak and Partanen disclose the method

according to claim 1, wherein said user's subscription information in the response message

returned to the S-CSCF comprises at least the user profile information (**HSSs** 142 are preferably

updated with the S-CSCF addresses (i.e., store S-CSCF name) and **send the subscriber data**

to the corresponding S-CSCFs (i.e., returns subscriber info to S-CSCF) for storage; Ejzak,

para 85; S-**CSCF downloads (610) the subscriber profile information from the HSS**; Ejzak,

para 110**)**.

5.   Claim 9 is rejected under 35 U.SC. 103(a) as being unpatentable over Ejzak (US

20030027569 A1) in view of Partanen (US 20040085949 A1) in view of Flykt (US 7366303 B2)

Regarding claim 9, the combination of Ejzak and Partanen disclose the method according

to claim 1, wherein, the request message comprising the request for storing the name of the S-

CSCF (the S-CSCF sends to the HSS a registration flag (via a Cx-Put), which the **HSS stores together with the S-CSCF name**); Partanen, para 55).

Ejzak and Partanen fails to specifically teach downloading the user's subscription information is carried by a Cx-Put message said response message returned to S-CSCF by HSS is carried by a Cx-Put Resp message, or, the request message comprising the request for storing the name of the S-CSCF and for downloading the user's subscription information is carried by a Cx-Pull message, and said response message returned to the S-CSCF by the HSS is carried by a Cx-Pull Resp message.

However, the preceding limitation is known in the art of communication. The third reference, Flykt teaches that Cx-Put informs the S-CSCF name to the HSS and Cx-Pull download subscriber profile to S-CSCF (It is noted that it is defined in the specifications that the I-CSCF shall send the Cx-Query information flow to the HSS (P-CSCF name, subscriber identity, home domain name, visited network contact name). The P-CSCF name is the contact name that the operator wishes to use for future contact to that P-CSCF. The HSS shall check whether the user is registered already. The HSS shall indicate whether the user is allowed to register in that visited network according to the User subscription and operator limitations/restrictions if any. **Cx-Query Resp** is sent from the HSS to the I-CSCF. If the checking in HSS was not successful the Cx-Query Resp shall reject the registration attempt. The I-CSCF shall send **Cx-Select** (serving network indication, subscriber identity) to the HSS to request the information related to the required S-CSCF capabilities which shall be input into the S-CSCF selection function. The HSS shall send **Cx-Select Resp** (required S-CSCF capabilities) to the I-CSCF; Flykt, column 8 lines 61-67 and column 9 lines 1-13; after performing a **Cx-Put**

(this informs the S.CSCF name to the HSS) in step C17 and a **Cx-Pull** (the **subscriber profile**

downloaded to S-CSCF) in step C18, the 200 OK message is forwarded to the UE in steps C19

to C21; Flykt, column 9 lines 25-28). Therefore, it would have been obvious to one of ordinary

skill in the art at the time of the invention to implement the technique taught by Flykt in view of

Partanen within the system of Ejzak to have a process where Cx-Put is used for providing HSS

information about S-CSCF and Cx-Pull is used for downloading messages. It is common in a

wireless network for S-CSCF to send the Cx-pull information (subscriber identity) to the HSS

in order to be download relevant information from the subscriber profile via Cx-Pull to the S-

CSCF.

6.   Claim 2 is rejected under 35 U.SC. 103(a) as being unpatentable over Ejzak (US

20030027569 A1), in view of Partanen (US 20040085949 A1), in view of Tammi (US

20040203763 A1)

        Regarding claim 2, the combination of Ejzak and Partanen discloses the method

according to claim 1, further comprising: upon receiving a request message from Interrogating

Call Session Control Function (I-CSCF) for inquiring about the information of S-CSCF, the HSS

returning to the I-CSCF an inquiry response message comprising the information needed for

determining an S-CSCF (**I-CSCF 302 or 310 queries HSS** 142 for the address of S-CSCF 304;

Ejzak; para 92; the iMSC sends (411) the SIP registration message to the I-CSCF in the home

system on behalf of the UE. The I-CSCF then communicates (412) with the HSS and S-CSCF to

complete the standard IMS registration procedure; Ejzak, para 99; as part of the registration

procedure, the HSS sends subscriber profile information to the S-CSCF; Ejzak, para 100);

according to the returned information in the response message, the I-CSCF determining the S-

CSCF that has the capability to serve a User Equipment (UE) and forwarding the request

message of the UE to the determined S-CSCF.

Although Ejzak and Partanen disclose all of the limitations, Ejzak and Partanen fail to

specifically teach, according to the returned information in the response message, the I-CSCF

determining the S-CSCF that has the capability to serve a User Equipment (UE) and forwarding

the request message of the UE to the determined S-CSCF.

However, the preceding limitation is known in the art. The third reference, Tammi

teaches the returned information in the response message, the I-CSCF determining the

S-CSCF that has the capability to serve a User Equipment (UE) and forwarding the

request message of the UE to the determined S-CSCF (information is sent from the HSS

24 to the I-CSCF 20;

based on the information received from the HSS 24, the I-CSCF 20 selects the appropriate S-

CSCF 22. Where the S-CSCF 22 is not identified, the I-CSCF uses the capability information

provided by the HSS to choose an appropriate S-CSCF. Where the HSS 24 provides information

identifying the S-CSCF, then the identified S-CSCF is used. In step S5, the I-CSCF 20 forwards

the register message to the selected S-CSCF 22; Tammi, para 29-30). Therefore, it would

have been obvious to one of ordinary skill in the art to implement the technique of

Tammi in view of Partanen within the system of Ejzak in order to effectively manage

data sessions between a visited network and home network. I-CSCF is the first point of

contact within the home network from a visited network; its job is to query the HSS and

find the location of the serving S-CSCF.

7.   Claims 6-8 are rejected under 35 U.SC. 103(a) as being unpatentable over Ejzak (US

20030027569 A1), in view of Partanen (US 20040085949 A1), in view of Tammi (US

20040203763 A1) in view of Flykt (US 7366303 B2)

        Regarding claim 6, the combination of Ejzak, Partanen and Tammi disclose the method

according to claim 2, wherein, when a Public User Identity performs registration for the first

time, the message received by the HSS from the I-CSCF for inquiring the information of S-

CSCF the information of S-CSCF is carried by a Cx-Query message (CX interface is the

interface between the home subscriber server and the interrogating call state control functions.

The CX interface, is also the interface between the home subscriber server and the serving call

state control function; Tammi, para 7); and said inquiry response message returned to the I-

CSCF from the HSS further comprises the information needed for determining an S-CSCF is

carried by a Cx-Query Resp message, or, the message received by the HSS from the I-CSCF for

inquiring the information of S-CSCF is carried by a Cx-Select-pull message; said inquiry

response message returned to the I-CSCF from the HSS further comprises the information

needed for determining an S-CSCF is carried by a Cx-Select-pull Resp message.

        Although combination of Ejzak, Partanen and Tammi disclose Cx interface, Ejzak,

Partanen and Tammi fail to specifically teach inquiry response message returned to the I-CSCF

from the HSS further comprises the information needed for determining an S-CSCF is carried by

a Cx-Query Resp message, or, the message received by the HSS from the I-CSCF for inquiring

the information of S-CSCF is carried by a Cx-Select-pull message; said inquiry response

message returned to the I-CSCF from the HSS further comprises the information needed for

determining an S-CSCF is carried by a Cx-Select-pull Resp message.

However, the preceding limitation is known in the art. Flykt teaches inquiry response

message returned to the I-CSCF from the HSS further comprises the information needed for

determining an S-CSCF is carried by a Cx-Query Resp message, or, the message received by the

HSS from the I-CSCF for inquiring the information of S-CSCF is carried by a Cx-Select-pull

message; said inquiry response message returned to the I-CSCF from the HSS further comprises

the information needed for determining an S-CSCF is carried by a Cx-Select-pull Resp message

(It is noted that it is defined in the specifications that the I-CSCF shall send the Cx-Query

information flow to the HSS (P-CSCF name, subscriber identity, home domain name, visited

network contact name). The P-CSCF name is the contact name that the operator wishes to use for

future contact to that P-CSCF. The HSS shall check whether the user is registered already. The

HSS shall indicate whether the user is allowed to register in that visited network according to the

User subscription and operator limitations/restrictions if any. **Cx-Query Resp** is sent from the

HSS to the I-CSCF. If the checking in HSS was not successful the Cx-Query Resp shall reject

the registration attempt. The I-CSCF shall send **Cx-Select** (serving network indication,

subscriber identity) to the HSS to request the information related to the required S-CSCF

capabilities which shall be input into the S-CSCF selection function. The HSS shall send **Cx-**

Select Resp (required S-CSCF capabilities) to the I-CSCF; Flykt, column 8 lines 61-67 and

column 9 lines 1-13;   after performing a Cx-Put (this informs the S.CSCF name to the HSS) in

step C17 and a Cx-Pull (the subscriber profile downloaded to S-CSCF) in step C18, the 200 OK

message is forwarded to the UE in steps C19 to C21; Flykt, column 9 lines 25-28). Therefore, it

would have been obvious to one of ordinary skill in the art to implement the technique of Flykt

in view of Tammi in view of Partanen within the system of Ejzak to incorporate Cx-Query

information flow to the HSS in order to request the subscriber identity (Cx-select sent by I-

CSCF), information related to the required S-CSCF capabilities (Cx-select) and the subscriber

profile download to S-CSCF (Cx-pull).

Regarding to claim 7, the combination of Ejzak, Partanen, Tammi and Flykt

disclose according to claim 2, wherein, when the UE is in a session, if the HSS has stored the

name of the S-CSCF that has served or is serving the UE, the HSS will, according to system

configuration, return to the I-CSCF a response message comprising the name of the S-CSCF, and

the I-CSCF will forward the session request message of the UE to the S-CSCF; or the HSS will

return to the I-CSCF a response message comprising the information of the name of the S-CSCF

and the S-CSCF capability information set that has the capability to meet the most strict service

subscription requirement of the UE, and the I-CSCF will determine an S-CSCF that has the

capability to serve the user and forwards the session request message of the UE to the determined

S-CSCF; if there is no S-CSCF stored in the HSS that has served the UE, the HSS will directly

return to the I-CSCF a response message comprising the S-CSCF capability information set that

has the capability to meet the most strict service subscription requirements of the UE before the

I-CSCF determines an S-CSCF that has the capability to serve the UE and forwards the session

request message of the user to the determined S-CSCF (**information is sent from the HSS 24 to**

the I-CSCF 20; based on the information received from the HSS 24, **the I-CSCF 20 selects the**

appropriate S-CSCF 22. Where the S-CSCF 22 is not identified, **the I-CSCF uses the**

capability information provided by the HSS to choose an appropriate S-CSCF. Where the

HSS 24 provides information identifying the S-CSCF, then the identified S-CSCF is used. In step

S5, **the I-CSCF 20 forwards the register message to the selected S-CSCF 22**; Tammi, para

29-30).

Regarding claim 8, the combination of Ejzak, Partanen, Tammi and Flykt disclose the

method according to claim 2, wherein, when the UE is in a session, the message received by the

HSS from the I-CSCF for inquiring about the information of S-CSCF is carried by a Cx-

Location-Query message; and said inquiry response message returned to I-CSCF from HSS

further comprises the information needed for determining an S-CSCF is carried by a Cx-

Location-Query Resp message, or, the message received by the HSS from the I-CSCF for

inquiring about the information of S-CSCF is carried by a Cx-Select-Pull message; and said

inquiry response message returned to the I-CSCF from the HSS further comprises the

information needed for determining an S-CSCF is carried by a Cx-Select-Pull Resp message It is

noted that it is defined in the specifications that the I-CSCF shall send the Cx-Query information

flow to the HSS (P-CSCF name, subscriber identity, home domain name, visited network contact

name). The P-CSCF name is the contact name that the operator wishes to use for future contact

to that P-CSCF. The HSS shall check whether the user is registered already. The HSS shall

indicate whether the user is allowed to register in that visited network according to the User

subscription and operator limitations/restrictions if any. **Cx-Query Resp** is sent from the HSS to

the I-CSCF. If the checking in HSS was not successful the Cx-Query Resp shall reject the

registration attempt. The I-CSCF shall send **Cx-Select** (serving network indication, subscriber

identity) to the HSS to request the information related to the required S-CSCF capabilities which

shall be input into the S-CSCF selection function. The HSS shall send **Cx-Select Resp** (required

S-CSCF capabilities) to the I-CSCF; Flykt, column 8 lines 61-67 and column 9 lines 1-13;   after

performing a Cx-Put (this informs the S.CSCF name to the HSS) in step C17 and a Cx-Pull (the

subscriber profile downloaded to S-CSCF) in step C18, the 200 OK message is forwarded to the

UE in steps C19 to C21; Flykt, column 9 lines 25-28).

8.   Claims 3-5 are rejected under 35 U.SC. 103(a) as being unpatentable over Ejzak (US

20030027569 A1), in view of Partanen (US 20040085949 A1), in view of Tammi (US

20040203763 A1), in view of Bajko (US 20040196796 A1)

        Regarding claim 3, the combination of Ejzak, Partanen, and Tammi discloses the method

according to claim 2, wherein, when a Public User Identity performs registration for the first

time, if there is at least one Public User Identity of the UE requesting registration that has been

registered in the HSS and the registration is still valid, and if the HSS decides there is no need for

the I-CSCF to re-select an S-CSCF to serve the UE, said information needed for determining the

S-CSCF comprises the name of the S-CSCF that is serving the UE (the S-CSCF sends to the

HSS a registration flag (via a Cx-Put), which the HSS stores together with the S-CSCF name.

The aim of using a registration flag is to indicate whether a particular IMPU of the UE is

unregistered or registered at a particular S-CSCF or if the initial registration at a particular S-

CSCF is pending. The HSS receives the information about this state (together with the S-CSCF

name and the UE identity) from the S-CSCF with which registration/re-registration of the user is

carried out only when a Cx-Put message is sent from the S-CSCF to the HSS. The registration

flag is set to initial registration pending at the Cx-Put procedure after message SM3 is received

by the S-CSCF; Partanen, para 55); if there is at least one Public User Identity of the UE of

which the registration status is unregistered or the registration has expired thereof but the HSS

still stores the name of the S-CSCF that was used by the UE last time, or if the UE has been

assigned an S-CSCF by the HSS as an unregistered party that is called, said information needed

for determining the S-CSCF comprises the name of the S-CSCF that has served the UE(the S-

CSCF sends to the HSS a registration flag (via a Cx-Put), which the HSS stores together with the

S-CSCF name. The aim of using a registration flag is to indicate whether a particular IMPU of

the UE is unregistered or registered at a particular S-CSCF or if the initial registration at a

particular S-CSCF is pending. The HSS receives the information about this state (together with

the S-CSCF name and the UE identity) from the S-CSCF with which registration/re-registration

of the user is carried out only when a Cx-Put message is sent from the S-CSCF to the HSS. The

registration flag is set to initial registration pending at the Cx-Put procedure after message SM3

is received by the S-CSCF; Partanen, para 55); if HSS has stored the name of the S-CSCF that

has served the UE and the HSS is not sure whether it is needed for the I-CSCF to re-select an S-

CSCF to serve the UE, said information needed for determining an S-CSCF comprises the name

of the S-CSCF that has served the UE and the S-CSCF capability information set that has the

capability to meet the most strict service subscription requirement of the UE requesting

registration; if the HSS does not store the name of the assigned S-CSCF that has served the UE,

then said information needed for determining an S-CSCF comprises the S-CSCF capability

information set that has the capability to meet the most strict service subscription requirement of

the UE requesting registration (**information is sent from the HSS 24 to the I-CSCF 20**;

based on the information received from the HSS 24, **the I-CSCF 20 selects the appropriate S-**

CSCF 22. Where the S-CSCF 22 is not identified, **the I-CSCF uses the capability information**

provided by the HSS to choose an appropriate S-CSCF. Where the HSS 24 provides

information identifying the S-CSCF, then the identified S-CSCF is used. In step S5, **the I-CSCF**

20 forwards the register message to the selected S-CSCF 22; Tammi, para 29-30;   confirmation

that the S-CSCF 22 is to provide the required service to the user. In step S18, a message is sent

from the S-CSCF 22 to the I-CSCF 20 effectively confirming the user is registered; Tammi, para

36).

Although the combination of Ejzak, Partanen and Tammi disclose all of the limitations,

Ejzak, Partanen, and Tammi fail to explicitly disclose HSS returning the S-CSCF name and an

no need for I-CSCF to re-select S-CSCF to serve UE.

However, the preceding limitation is known in the art. The fourth reference, Bajko

teaches HSS returning the S-CSCF name and no need for I-CSCF to re-select S-CSCF to serve

UE (HSS keeps a record of the relations between various identities associated with the

subscription. The HSS also maintains information regarding identities that are registered to the

S-CSCFs. In case of registration of a further identity related to an already existing registration,

the same S-CSCF can be allocated for this registration by providing appropriate routing

information such as the name and/or address of the S-CSCF; Bajko, para 36;   HSS shall return

the S-CSCF name in the response given for the user registration status query; Bajko, para 37).

Therefore, it would have been obvious to one of ordinary skill in the art to emulate the technique

of Bajko in view of Tammi in view of Partanen with in the system of Ejzak in order to reduce

load on the interface, Cx protocol, of the HSS since the I-CSCF cannot know if the user is

registered in any S-CSCFs. Thus, by using S-CSCF information from HSS, I-CSCF does not

have to forward the same subscription to different S-CSCF, which in turn reduce load on the

interface of the HSS.

Regarding claim 4, the combination of Ejzak, Partanen, Tammi and Bajko disclose the

method according to claim 3, wherein, if the information returned from the HSS comprises only

the name of S-CSCF, said determining the S-CSCF that has the capability to serve the UE for I-

CSCF further comprises: the I-CSCF using the S-CSCF in the returned information as the S-

CSCF that has the capability to serve the user (in the case of an existing registration the **HSS**

shall return the S-CSCF name in the response given for the user registration status query;

the **I-CSCF may then forward the register message to the S-CSCF which name or address**

that was received in the response (UAR); Bajko, para 37-38); if the information returned from

the HSS comprises only the S-CSCF capability information set that has the capability to meet the

most strict service subscription requirement of the UE requesting registration, said determining

the S-CSCF that has the capability to serve the UE for I-CSCF further comprises: the I-CSCF

selects a new S-CSCF that has the capability to meet the current service requirement of the UE

according to the S-CSCF capability information set in the returned response message, and

determining the newly-selected S-CSCF as the S-CSCF that has the capability to serve the UE (if

none of the public identities of the subscription is registered in any of the control entities 22 to

24, then the **HSS 26 would return the service capabilities to the I-CSCF 31**. The **I-CSCF 31**

may then make the allocation based on the service capabilities data received from the HSS

26 as shown in FIG. 1; Bajko, para 40-42); if the information returned from the HSS comprises

the name of S-CSCF and S-CSCF capability information set that has the capability to meet the

most strict service subscription requirement of the UE requesting registration, said determining

the S-CSCF that has the capability to serve the UE for I-CSCF further comprises: the I-CSCF

verifying according to the returned name of S-CSCF whether the S-CSCF has the capability to

meet the current service requirement of the UE, if yes, determining the returned S-CSCF is the S-

CSCF that has the capability to serve the UE , otherwise, selecting a new S-CSCF that has the

capability to meet the current service demand of the UE according to the S-CSCF capability

information set in the response message, and determining the newly-selected S-CSCF is the S-

CSCF that has the capability to serve the UE (**information is sent from the HSS 24 to the I-**

CSCF 20; based on the information received from the HSS 24, **the I-CSCF 20 selects the**

appropriate S-CSCF 22 (i.e., newly selected S-CSCF**).** Where the S-CSCF 22 is not identified,

the I-CSCF uses the capability information provided by the HSS to choose an appropriate

S-CSCF. Where the HSS 24 provides information identifying the S-CSCF, then the identified S-

CSCF is used. In step S5, the I-CSCF 20 forwards the register message to the selected S-CSCF

22; Tammi, para 29-30).

Regarding claim 5, the combination of Ejzak, Partanen, Tammi and Bajko disclose the

method according to claim 2, after the HSS receives the request message for inquiring the

information of S-CSCF from the I-CSCF(i.e., I-CSCF initiates user registration status query;

Bajko, para 38), further comprising: deciding according to the user's subscription information

and the policy of the operator that the UE is permitted to perform a registration request in the

current network before subsequent steps are executed (every time this message is received by a

CSCF, the **HSS needs to check if the user really exists and that the user is allowed to**

register to a particular visited network. The HSS also checks to see if a CSCF has already

been assigned. Accordingly, with the currently proposals, the user will send a register message, if

the user wants to register or deregister. Regardless of whether the **user** is **registering or**

deregistering, all of the **checks will be made by the HSS**; Tammi, para 7).

9.   Claims 12-14 rejected under 35 U.SC. 103(a) as being unpatentable over Tammi (US

20040203763 A1) in view of Partanen (US 20040085949 A1)

Regarding claim 12, Tammi discloses a method for reducing load of Home

Subscription Server (HSS)'s interface, comprising: upon receiving a message from a I-CSCF for

inquiring about the information of S-CSCF, a HSS returning to the I-CSCF an inquiry response

message comprising a information needed for determining an S-CSCF (**information is sent**

from the HSS 24 to the I-CSCF 20; **based on the information received from the HSS 24, the**

I-CSCF 20 selects the appropriate S-CSCF 22. Where the S-CSCF 22 is not identified, **the I-**

CSCF uses the capability information provided by the HSS to choose an appropriate S-

CSCF. Where the HSS 24 provides information identifying the S-CSCF, then the identified S-

CSCF is used. In step S5, **the I-CSCF 20 forwards the register message to the selected S-**

CSCF 22; Tammi, para 29-30); the I-CSCF determining a S-CSCF that has the capability to

serve a UE and forwarding request message of the UE to the determined S-CSCF, wherein, when

a Public User Identity performs registration for the first time (The P-CSCF 16 sends the **register**

request, originating from the user equipment 10 to the I-CSCF 20 identified; the CSCF 20

makes a request for information relating to the subscriber (ie the user) registration status by

sending a query to the HSS; the HSS sends a reply to the I-CSCF in the form of a user

authorisation answer (UAA) command; if the user has been authorised and the server has not yet

been assigned, instead server capability information may be provided which can be used for the

selection of the server that will perform the control of the services for the multimedia user; **based**

on the information received from the HSS 24, the I-CSCF 20 selects the appropriate S-

CSCF 22. Where the S-CSCF 22 is not identified, the I-CSCF uses the capability

information provided by the HSS to choose an appropriate S-CSCF; therefore, user register

for the first time; Tammi, para 27-30), if there is at least one Public User Identity of the UE

requesting registration that has been registered in the HSS and the registration is still valid, and

the HSS determines there is no need for the I-CSCF to re-select an S-CSCF to serve the UE, then

said information needed for determining an S-CSCF comprises the name of the S-CSCF that is

serving the UE (the **I-CSCF 20 selects the appropriate S-CSCF 22. Where the S-CSCF 22 is**

not identified, the I-CSCF uses the capability information provided by the HSS to choose

an appropriate S-CSCF. Where the HSS 24 provides information identifying the S-CSCF,

then the identified S-CSCF is used. In step S5, the I-CSCF 20 forwards the register message to

the selected S-CSCF 22; Tammi, para 27-30)**;**

if there is at least one Public User Identity of the UE requesting registration of which the

registration status is unregistered or the registration has expired, but the HSS still stores the name

of the S-CSCF that was used by the UE last time, or if the UE has been assigned an S-CSCF by

the HSS as an unregistered party that is called, then said information needed for determining an

S-CSCF comprises the name of the S-CSCF that has served the UE **(The HSS 24 validates**

whether identities provided for example private or public identities, belong to the same user.

Additionally, the **HSS 24 may check whether the user has already registered** anchor whether

the user is authorised to register in the network where the user is roaming; the HSS sends a reply

to the I-CSCF in the form of a user authorisation answer (UAA) command. **If the user has been**

authorised to register and a server is already assigned to it, the message will contain the SIP

URL of the server so that the **registration request can be forwarded**. If the user has been

authorised and the **server has not yet been assigned, instead server capability information**

may be provided which can be used for the selection of the server that will perform the

control of the services for the multimedia user; based on the information received from the HSS

24, the **I-CSCF 20 selects the appropriate S-CSCF 22. Where the S-CSCF 22 is not**

identified, the I-CSCF uses the capability information provided by the HSS to choose an

appropriate S-CSCF. Where the HSS 24 provides information identifying the S-CSCF,

then the identified S-CSCF is used. In step S5, the I-CSCF 20 forwards the register message to

the selected S-CSCF 22; Tammi, para 27-30**);**

if HSS has stored the name of the S-CSCF that has served or is serving the UE and the HSS is

not sure whether it is needed for the I-CSCF to re-select an S-CSCF to serve the UE, then said

information needed for determining an S-CSCF comprises the name of the S-CSCF that has

served or is serving the UE and the S-CSCF capability information set that has the capability to

meet the most strict service subscription requirement of the UE requesting registration (the **I-**

CSCF 20 selects the appropriate S-CSCF 22. Where the S-CSCF 22 is not identified, the I-

CSCF uses the capability information provided by the HSS to choose an appropriate S-

CSCF. Where the HSS 24 provides information identifying the S-CSCF, then the identified

S-CSCF is used. In step S5, the I-CSCF 20 forwards the register message to the selected S-

CSCF 22; Tammi, para 27-30**)**;

if there is no assigned S-CSCF that has served the UE stored in the HSS, then said information

needed for determining an S-CSCF comprises the S-CSCF capability information set that has the

capability to meet the most strict service subscription requirement of the UE requesting

registration (the **I-CSCF 20 selects the appropriate S-CSCF 22. Where the S-CSCF 22 is not**

identified, the I-CSCF uses the capability information provided by the HSS to choose an

appropriate S-CSCF. Where the HSS 24 provides information identifying the S-CSCF,

then the identified S-CSCF is used. In step S5, the I-CSCF 20 forwards the register message to

the selected S-CSCF 22; Tammi, para 27-30**)**.

Although Tammi discloses all of the limitations, Tammi fails to specifically teach storing

the name of S-CSCF.

However, the preceding limitation is known in the art. The second reference, Partanen

teaches storing the name of S-CSCF (the S-CSCF sends to the HSS a registration flag (via a Cx-

Put), which the HSS stores together with the S-CSCF name; Partanen, para 55). Therefore, it

would have been obvious to one of ordinary skill in the art to implement the technique of

Partanen within the system of Tammi to emulate the storing of S-CSCF name at the HSS in order

for the I-CSCF to use without having to re-select new S-CSCF (directly or indirectly through

HSS), which in turn reduce the load on the Cx interface.

Regarding claim 13, the combination of Tammi and Partanen disclose the method

according to claim 12, wherein, if the information returned from the HSS comprises only the

name of S-CSCF (S-CSCF name; Partanen, para 55), said determining the S-CSCF that has the

capability to serve the UE for I-CSCF further comprises: the I-CSCF determining the S-CSCF in

the returned information is the S-CSCF that has the capability to serve the UE (the **I-CSCF 20**

selects the appropriate S-CSCF 22. Where the S-CSCF 22 is not identified, the I-CSCF uses

the capability information provided by the HSS to choose an appropriate S-CSCF. Where

the HSS 24 provides information identifying the S-CSCF, then the identified S-CSCF is

used. In step S5, the I-CSCF 20 forwards the register message to the selected S-CSCF 22;

Tammi, para 27-30); if the information returned from the HSS comprises only the S-CSCF

capability information set that has the capability to meet the most strict service subscription

requirement of the UE requesting registration, then said determining the S-CSCF that has the

capability to serve the UE for I-CSCF further comprises: the I-CSCF selecting a new S-CSCF

that has the capability to meet the current service requirement of the UE according to the S-

CSCF capability information set in the returned response message, and determining the newly-

selected S-CSCF as the S-CSCF that has the capability to serve the EU (the **I-CSCF 20 selects**

the appropriate S-CSCF 22. Where the S-CSCF 22 is not identified, the I-CSCF uses the

capability information provided by the HSS to choose an appropriate S-CSCF. Where the

HSS 24 provides information identifying the S-CSCF, then the identified S-CSCF is used.

In step S5, the I-CSCF 20 forwards the register message to the selected S-CSCF 22; Tammi, para

27-30); if the information returned from the HSS comprises the name of S-CSCF and S-CSCF

capability information set that has the capability to meet the most strict service subscription

requirement of the UE requesting registration, then said determining the S-CSCF that has the

capability to serve the UE for I-CSCF further comprises: the I-CSCF deciding according to the

returned name of S-CSCF whether the S-CSCF has the capability to meet the current service

requirement of the UE, if yes, determining the S-CSCF in the returned information is the S-

CSCF that has the capability to serve the UE, otherwise, selecting a new S-CSCF that has the

capability to meet the current service requirement of the UE according to the S-CSCF capability

information set in the response message, and determining the newly-selected S-CSCF as the S-

CSCF that has the capability to serve the user (The HSS 24 validates whether identities provided

for example private or public identities, belong to the same user. Additionally, the **HSS 24 may**

check whether the user has already registered anchor whether the user is authorised to register

in the network where the user is roaming; the HSS sends a reply to the I-CSCF in the form of a

user authorisation answer (UAA) command. **If the user has been authorised to register and a**

server is already assigned to it, the message will contain the SIP URL of the server so that the

registration request can be forwarded. If the user has been authorised and the **server has not**

yet been assigned, instead server capability information may be provided which can be

used for the selection of the server that will perform the control of the services for the

multimedia user; based on the information received from the HSS 24, the **I-CSCF 20 selects the**

appropriate S-CSCF 22. Where the S-CSCF 22 is not identified, the I-CSCF uses the

capability information provided by the HSS to choose an appropriate S-CSCF. Where the

HSS 24 provides information identifying the S-CSCF, then the identified S-CSCF is used.

In step S5, the I-CSCF 20 forwards the register message to the selected S-CSCF 22; Tammi, para

27-30).

Regarding claim 14, the combination of Tammi and Partanen disclose the method

according to claim 12, after the HSS receives the message for inquiring about the information of

S-CSCF from the I-CSCF, further comprising: deciding according to the user's subscription

information and the policy of the operator that the UE is permitted to perform a registration

request in the current network before subsequent steps is executed **(the CSCF 20 makes a request**

for information relating to the subscriber (ie the user) registration status by sending a **query to**

the HSS in the form of a user authorisation request (UAR) command. This request is sent to the

HSS in order to request the authorisation of the registration of a multimedia user The **HSS 24**

validates whether identities provided for example private or public identities, belong to the

same user. Additionally, the HSS 24 may check whether the user has already registered anchor

whether the user is authorised to register in the network where the user is roaming; Tammi,

para 27) .

10.   Claims 15-17 are rejected under 35 U.SC. 103(a) as being unpatentable over Tammi (US

20040203763 A1) in view of Partanen (US 20040085949 A1) in view of Flykt (US 7366303 B2)

Regardind claim 15, the combination of Tammi and Partanen disclose the method

according to claim 12, wherein, when a public user identifier performs registration for the first

time, the message received by the HSS from the I-CSCF for inquiring about the information of

S-CSCF (The P-CSCF 16 sends the register request, originating from the user equipment 10 to

the I-CSCF 20 identified. In step S3, the CSCF 20 makes a request for information relating to the

subscriber (ie the user) registration status by sending a query to the HSS; the HSS sends a reply

to the I-CSCF; information is sent from the HSS 24 to the I-CSCF 20; Tammi, para 27-30; also,

The P-CSCF forwards the response RES to the I-CSCF in a message SM8, which queries the

HSS to find the address of the S-CSCF. The I-CSCF forwards the RES to the S-CSCF in a

message SM9; Partanen, para 59) .

Tammi and Partanen fail to specifically teach that the information of S-CSCF is carried

by a Cx-Query message; and said inquiry response message returned to the I-CSCF from the

HSS comprises the information needed for determining an S-CSCF is carried by a Cx-Query

Resp message, or, the message received by the HSS from the I-CSCF for inquiring about the

information of S-CSCF is carried by a Cx-Select-Pull message, and said inquiry response

message returned to the I-CSCF from the HSS comprises the information needed for determining

an S-CSCF is carried by a Cx-Select-Pull Resp message.

However, the preceding limitation is known in the art of communication. The third

reference, Flykt teaches that Cx-Put informs the S-CSCF name to the HSS and Cx-Pull

download subscriber profile to S-CSCF (It is noted that it is defined in the specifications that the

I-CSCF shall send the Cx-Query information flow to the HSS (P-CSCF name, subscriber

identity, home domain name, visited network contact name). The P-CSCF name is the contact

name that the operator wishes to use for future contact to that P-CSCF. The HSS shall check

whether the user is registered already. The HSS shall indicate whether the user is allowed to

register in that visited network according to the User subscription and operator

limitations/restrictions if any. **Cx-Query Resp** is sent from the HSS to the I-CSCF. If the

checking in HSS was not successful the Cx-Query Resp shall reject the registration attempt. The

I-CSCF shall send **Cx-Select** (serving network indication, subscriber identity) to the HSS to

request the information related to the required S-CSCF capabilities which shall be input into the

S-CSCF selection function. The HSS shall send **Cx-Select Resp** (required S-CSCF capabilities)

to the I-CSCF; Flykt, column 8 lines 61-67 and column 9 lines 1-13;   after performing a **Cx-Put**

(this informs the S.CSCF name to the HSS) in step C17 and a **Cx-Pull** (the **subscriber profile**

downloaded to S-CSCF) in step C18, the 200 OK message is forwarded to the UE in steps C19

to C21; Flykt, column 9 lines 25-28). Therefore, it would have been obvious to one of ordinary

skill in the art at the time of the invention to implement the technique taught by Flykt in view of

Partanen within the system of Tammi to have a process where Cx-Put is used for providing HSS

information about S-CSCF and Cx-Pull is used for downloading messages. It is common in a

wireless network for S-CSCF to send the Cx-pull information (subscriber identity) to the HSS

in order to be download relevant information from the subscriber profile via Cx-Pull to the S-

CSCF.

Regarding claim 16, the combination of Tammi, Partanen and Flykt disclose the method

according to claim 12, wherein, when the UE is in a session, if the HSS has stored the name of

the S-CSCF that has served or is serving the UE, the HSS will, according to system

configuration, return to the I-CSCF a response message comprising the name of S-CSCF, and the

I-CSCF will forward the session request message of the UE to the S-CSCF (The P-CSCF 16

sends the register request, originating from the user equipment 10 to the I-CSCF 20 identified. In

step S3, the CSCF 20 makes a request for information relating to the subscriber (ie the user)

registration status by sending a query to the HSS; the HSS sends a reply to the I-CSCF;

information is sent from the HSS 24 to the I-CSCF 20; Tammi, para 27-30; also, HSS stores

together with the **S-CSCF name**, the P-CSCF forwards the response RES to the I-CSCF in a

message SM8, which queries the HSS to find the address of the S-CSCF. The I-CSCF forwards

the RES to the S-CSCF in a message SM9; Partanen, para 55 & 59); or the HSS will return to the

I-CSCF a response message comprising the S-CSCF name and S-CSCF capability information

set that has the capability to meet the most strict service subscription requirement of the UE, and

the I-CSCF will determine an S-CSCF that has the capability to serve the user and forwards the

session request message of the UE to the determined S-CSCF; if there is no S-CSCF stored in the

HSS that has served the UE, the HSS will directly return to I-CSCF a response message

comprising the S-CSCF capability information set that has the capability to meet the most strict

service subscription requirement of the UE before I-CSCF determines an S-CSCF that has the

capability to serve the UE and forwards the session request message of the UE to the determined

S-CSCF (The HSS 24 validates whether identities provided for example private or public

identities, belong to the same user. Additionally, the **HSS 24 may check whether the user has**

already registered anchor whether the user is authorised to register in the network where the

user is roaming; the HSS sends a reply to the I-CSCF in the form of a user authorisation answer

(UAA) command. **If the user has been authorised to register and a server is already**

assigned to it, the message will contain the SIP URL of the server so that the **registration**

request can be forwarded. If the user has been authorised and the **server has not yet been**

assigned, instead server capability information may be provided which can be used for the

selection of the server that will perform the control of the services for the multimedia user;

based on the information received from the HSS 24, the **I-CSCF 20 selects the appropriate S-**

CSCF 22. Where the S-CSCF 22 is not identified, the I-CSCF uses the capability

information provided by the HSS to choose an appropriate S-CSCF. Where the HSS 24

provides information identifying the S-CSCF, then the identified S-CSCF is used. In step

S5, the I-CSCF 20 forwards the register message to the selected S-CSCF 22; Tammi, para 27-

30).

Regarding claim 17, the combination of Tammi, Partanen and Flykt disclose the method

according to claim 12, wherein, when the UE is in a session, the message received by the HSS

from the I-CSCF for inquiring about the information of S-CSCF (the CSCF 20 makes a request

for information relating to the subscriber (ie the user) registration status by sending a query to the

HSS; the HSS sends a reply to the I-CSCF; **information is sent from the HSS 24 to the I-**

CSCF 20; based on the information received from the HSS 24, the **I-CSCF 20 selects the**

appropriate S-CSCF 22. Where the S-CSCF 22 is not identified, the I-CSCF uses the

capability information provided by the HSS to choose an appropriate S-CSCF. Where the

HSS 24 provides information identifying the S-CSCF, then the identified S-CSCF is used.

In step S5, the I-CSCF 20 forwards the register message to the selected S-CSCF 22; Tammi, para

27-30).

Tammi and Partanen fail to specifically teach that the information of S-CSCF is carried

by a Cx-Location-Query message, and said inquiry response message returned to the I-CSCF

from the HSS comprises the information needed for determining an S-CSCF is carried by a Cx-

Location-Query Resp message, or, the message received by the HSS from the I-CSCF for

inquiring about the information of S-CSCF is carried by a Cx-Select-Pull message, and said

inquiry response message returned to the I-CSCF from the HSS comprises the information

needed for determining an S-CSCF is carried by a Cx-Select-Pull Resp message.

However, the preceding limitation is known in the art of communication. The third

reference, Flykt teaches that Cx-Put informs the S-CSCF name to the HSS and Cx-Pull

download subscriber profile to S-CSCF (It is noted that it is defined in the specifications that the I-CSCF shall send the Cx-Query information flow to the HSS (P-CSCF name, subscriber identity, home domain name, visited network contact name). The P-CSCF name is the contact name that the operator wishes to use for future contact to that P-CSCF. The HSS shall check whether the user is registered already. The HSS shall indicate whether the user is allowed to register in that visited network according to the User subscription and operator limitations/restrictions if any. **Cx-Query Resp** is sent from the HSS to the I-CSCF. If the checking in HSS was not successful the Cx-Query Resp shall reject the registration attempt. The I-CSCF shall send **Cx-Select** (serving network indication, subscriber identity) to the HSS to request the information related to the required S-CSCF capabilities which shall be input into the S-CSCF selection function. The HSS shall send **Cx-Select Resp** (required S-CSCF capabilities) to the I-CSCF; Flykt, column 8 lines 61-67 and column 9 lines 1-13;   after performing a **Cx-Put** (this informs the S.CSCF name to the HSS) in step C17 and a **Cx-Pull** (the **subscriber profile downloaded to S-CSCF**) in step C18, the 200 OK message is forwarded to the UE in steps C19 to C21; Flykt, column 9 lines 25-28). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the technique taught by Flykt in view of Partanen within the system of Tammi to have a process where Cx-Put is used for providing HSS information about S-CSCF and Cx-Pull is used for downloading messages. It is common in a wireless network for S-CSCF to send the Cx-pull information (subscriber identity) to the HSS in order to be download relevant information from the subscriber profile via Cx-Pull to the S-CSCF.

Conclusion

11.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chhean Thao whose telephone number is 571-270-7497. The examiner can normally be reached on Monday-Friday 8:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne Bost can be reached on 571-270-7023. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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